OOI-12163

TOP SECRET

PRIORITY

T O P S E C R E T 231731Z APR 71 CITE [redacted] 0766 25X1

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SUBJECT: MSN 1114 PHOTOGRAPHIC EVALUATION INTERIM REPORT

1. NUMERICAL SUMMARY:

MSN NO DATES: 1114-1, 24-31 MAR 71; REC 31 MAR 71/2327Z
1114-2, 31 MAR - 8 APR 71; REC 9 APR 71/2137Z

LAUNCH DATE/TIME: 24 MAR 71/2105Z

VEHICLE NO: 1660

CAM SYST: CR-14

PAN CAMS: AFT LOOKING 328; FILM 7,800 FT 3414; 1,000 FT 3404; 7,500 FT 3414
FWD-LOOKING 329; FILM 7,800 FT 3414, 1,000 FT 3404; 7,500 FT 3414

DISIC UNIT: 1R

STELLAR LENS: PORT F/2.8; 1.5 SEC NO FILTER
STBD F/2.8; 1.5 SEC NO FILTER

FILM TYPE: 3401

TERRAIN LENS: F/6.3 SHUTTER 1/500 SEC (FIXED W-12 FILTER)

FILM TYPE: 3400

REC REVS: MSN 1114-1, REV 115
MSN 1114-2, REV 260

LAUNCH WINDOW: 2105Z TO 2205Z, 24 MAR 71

2. CAM SETTING:

FWD LOOKING: W-25 GLASS 0.037 IN(PRIM)
W-25 GLASS 0.040 IN (ALT)
SLIT WIDTH: POS 1 0.142 IN.
POS 2 0.184 IN
POS 3 0.220 IN
POS 4 0.323 IN
FAIL SAFE 0.193 IN

AFT LOOKING: W-23 GLASS 0.037 IN (PRIM)
W-23 GLASS 0.040 IN (ALT)
SLIT WIDTH: POS 1 0.110 IN
POS 2 0.152 IN
POS 3 0.189 IN
POS 4 0.278 IN
FAIL SAFE 0.163 IN

DISTRIBUTION		
CY	OFFICE	PI
1	FILE	
2	CABLE SEC.	
3	TSG OAD	
4	IEB	
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ADVANCE CY SANITIZED WITH TEXT

3. PERFORMANCE SUMMARY

A. IMAGE QUALITY-THE OVERALL ON-ORBIT RESOLUTION OF THE MSN 1114 CAMERAS IN THE BEST OBTAINED TO DATE WITH THE CORONA SYSTEM. THIS IS DEMONSTRATED BY THE RESULTING MIPS OF 120 FOR 1114-1 AND 125 FOR 1114-2. IMAGERY NOT DEGRADED BY ATMOSPHERICS IS CONSISTENTLY SHARP AND IN MANY INSTANCES MAINTAINS ITS SHARPNESS AT MAGNIFICATIONS UP TO 100X.

FACTORS CONTRIBUTING TO THE HIGH PERFORMANCE OF 1114 ARE CONSIDERED TO BE:

(1) PREFLIGHT FOCUS ADJUSTMENTS FOR AVERAGE FLIGHT TEMP. OF 60 DEGREES F.

(2) USE OF 3414 FILM AND THE DUAL GAMMA PROCESSING WHICH PERMITS SHORTER EXPOSURE TIMES.

(3) INSTALLATION OF GLASS FILTERS WITH THE IV GENERATION PETZVAL LENS.

(4) THIS MISSION WAS FLOWN AT THE TIME OF YEAR THAT PERMITTED SHORTER EXPOSURE TIMES.

(5) INTRODUCTION OF SO-192 DUPLICATING MATERIAL.

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THE LENS IN THE FOWARD CAMERA PRODUCED THE HIGHEST PRE-FLIGHT AND INFLIGHT RESOLUTION OF ANY CORONA CAMERA SYSTEM TO DATE. THE AVERAGE READINGS OF THE BEST 51/51 CORN TARGESTS WERE [redacted] WHICH EQUATES TO BETTER THAN 200 CYCLES PER MM AT 88 NM. 25X1

B. PI SUITABILITY. [redacted] REPORTED THE PI SUITABILITY FOR 25X1 THIS MISSION RANGES FROM GOOD TO POOR WITH THE LARGEST PORTION FALLING IN THE FAIR TO POOR CATEGORY. THE CHINA COVERAGE FOR THIS MISSION WAS VERY PRODUCTIVE WITH SEVERAL NEWLY LOCATED UNIDENTIFIED INSTALLATIONS; HOWEVER, WEATHER CONDITIONS AND VEHICLE PROBLEMS RESULTED IN A NON-STANDARD OPERATIONAL MISSION. SEE PARA 6.

4. PAN CAMERA ANOMALIES:

A. PROBLEM-A SMALL FOREIGN DEPOSIT IN FRAME 4, PASS A09E, AFT CAMERA, CAUSED A BASE SCRATCH THROUGH PASS D40.

CAUSE-THE SCRATCH ASSOCIATED WITH THE DEPOSIT OCCURRED DURING PROCESSING.

ACTION-NONE ASSIGNED. [redacted] WILL GIVE CONTINUED 25X1 ATTENTION TO CLEANLINESS DURING PROCESSING.

B. PROBLEM-THE HORIZON FORMAT LOCATIONS OF BOTH FWD AND AFT UNITS ARE SLIGHTLY ERRATIC WITH RESPECT TO THE MAIN CAMERA FORMATS. THE TWO FORMATS NEVER OVERALY; HOWEVER, A MINIMUM DISTANCE OF .06 INCH INTERMITTENTLY OCCURS BETWEEN THE HORIZON AND THE ADJACENT PAN FRAME.

CAUSE-THE MINIMUM DISTANCE OCCURS ONLY ON THE SHUTDOWN FRAME. THE VARIANCE OR SLIGHTLY ERRATIC DISTANCES ARE CONSIDERED NORMAL FOR THIS TYPE OF TRANSPORT SYSTEM. THE INSTRUMENT TIMING APPEARS TO BE SET SUCH THAT DURING THE CREEP FRAME TRANSPORT OCCURS A BRIEF INSTANT BEFORE PHOTOGRAPHY IS COMPLETE. THIS CAUSES A SLIGHTLY LONGER FORMAT LENGTH RESULTING IN A SHORTER DISTANCE BETWEEN THE HORIZON FORMAT AND MAIN CAMERA FORMAT.

ACTION-NO FURTHER ACTION REQUIRED.

C. PROBLEM-MINOR BASE SCRATCH BEGINS IN FRAME 5 OF PASS A09E OF THE FWD LOOKING CAMERA AND CONTINUES THRU THE MIDDLE OF PASS D24. THE SCRATCH WAVERS SLIGHTLY BUT IS GENERALLY LOCATED .75 INCH FROM THE BINARY EDGE.

CAUSE-VERY MINOR EFFECT ON MATERIAL. CHARACTERISTICS OF THE SCRATCH MAKE IT IMPOSSIBLE TO DETERMINE CAUSE.

ACTION-NONE REQUIRED.

D. CHARACTERISTIC ANOMALIES HAVING A MINOR EFFECT ON PERFORMANCE.

(1) ROLLER/EQUIPMENT SHADOWGRAPHS ARE PRESENT ON THE FIRST AND LAST PARTS OF MANY PASSES. THESE RANGE FROM .5 TO 1.5 INCHES IN LENGTH ACROSS THE FILM WEB.

(2) SOME PASSES CONTAIN A SMALL ONE-EIGHT INCH WIDE DENSITY FOG PATTERN ACROSS THE FILM WEB. THIS OCCURS ON THE SEVENTH FROM LAST FRAME ON PASSES SO AFFECTED (AFT).

(3) DENDRITIC STATIC IS PRESENT FROM PASS 151 THRU REST OF THE MSN (AFT).

(4) FRAMES 108 AND 109 OF PASS D104 CONTAIN VERY FINE SCRATCHES AND ABRASIONS APPARENTLY ASSOCIATED WITH CUT AND WRAP SEQUENCE.

(5) THE FWD PREFLIGHT MATERIAL AND THE FIRST TEN PASSES CONTAIN TWO ROWS OF PLUS DENSITY STATIC SPOTS OCCURRING AT A FREQUENCY OF 1.6 INCHES, AND ARE LOCATED 1.5 AND .6 INCHES FROM THE TIME TRACK EDGE. THE SPOTS ARE OFFSET

ALONG THE FILM WEB .7 INCH FROM EACH OTHER.

(6) CHARACTERISTIC OUT OF FOCUS AREAS COMMON TO THE SYSTEM WERE NOTED ON THE FWD MATERIAL.

(7) THE FIRST FWD PASS CONTAINS SEQUENTIALLY OVEREXPOSED, UNDEREXPOSED, AND SMEARED CAMERA SERIAL NUMBER IMAGES.

(8) RAIL SCRATCHES ARE HEAVY ON THE FWD PREFLIGHT MATERIAL AND DIMINISH SLIGHTLY AS THE MISSION PROGRESSES.

5. A. DISIC CAMERA PERFORMANCE-LAST RECOVERED FRAME FROM THE INDEX CAMERA IS FRAME 102 OF PASS 233. POINT-TYPE STAR IMAGES ARE RECORDED ON STELLAR CAMERAS WITH 15-25 STARS ON THE PORT AND 10-20 STARS ON THE STARBOARD SIDE. INDEX PHOTOGRAPHIC QUALITY IS GOOD AND EQUAL TO BEST OF SERIES. CORONA AND DENDRITIC STATIC DISCHARGES WERE MINIMAL RESULTING IN THE CLEANEST RECORD TO DATE.

B. ANOMALIES-NONE. CHARACTERISTIC OCCURRENCES LISTED FOR REFERENCE:

(1) PLUS DENSITY SKEW MARKS, OUTSIDE THE ACTIVE FORMAT.

(2) MISSING BINARY TIME WORDS DUE TO TIMING BRUSH STOP POINT VARIATIONS.

(3) EMULSION BUILD-UP ON THE STARBOARD RESEAU PLATE, CAUSING MINUS DENSITY SPOTS.

(4) STATIC ON TRAILING EDGE DUE TO FINAL WRAP-UP ~~XXXXXXXXXXX~~

ON THE FILM SPOOL.

6. SYSTEM ANOMALIES:

A. PAYLOAD-NONE.

B. VEHICLE-

(1) THE GUIDANCE SUBSYSTEM USED EXCESSIVE AMOUNTS OF GAS ON-ORBIT CONTRIBUTING TO A MISSION DURATION OF 15 DAYS VICE THE NOMINAL 19 DAY MISSION. ORIGINALLY THIS PROBLEM POSED A POSSIBLE MISSION LENGTH OF 6 TO 9 DAYS.

(2) THE H-TIMER CEASED TO FUNCTION DURING REV 245. APPROXIMATELY 450 FT OF FILM PER CAMERA WAS UNUSED AS A RESULT OF THIS FAILURE.

7. THE FOLLOWING OPEN PET ACTION ITEMS WERE DISCUSSED AND ARE CONSIDERED CLOSED:

A. AC 1110-3-PLUS DENSITY SPOTS. SPOTS WERE VERY FEW AND MINOR ON MSN 114. THIS ALSO CLOSES AC 1111-1.

B. AC 1112-1-EXPOSURE LOSS HORIZON CAMERA.

C. AC 1112-2-FILM, MISC., POWER DROP.

D. AC 1112-3-FILM LOSS, DISIC TAKE-UP.

COMPLETED ACTION SHEETS WILL BE FORWARDED TO ALL ADDRESSEES.

8. COMMENT-THIS CORONA PET REPORT IS SUBMITTED WITH A MIXTURE OF SADNESS AND PRIDE. SADNESS BECAUSE THIS MAY BE THE LAST CORONA PET REPORT. PRIDE BECAUSE WE ARE PROUND TO HAVE BEEN ASSOCIATED WITH THE MOST SUCCESSFUL SATELLITE PROGRAM IN THE HISTORY OF THE NRP. THE PET MEETINGS STARTED IN JUNE OF 1962 WITH AN EVALUATION OF THE "CAMERA MALFUCTIONS" ON MISSION 9034A. WE HAVE ENJOYED OUR EXPERIENCE KNOWING THAT WE HAVE AIDED IN THE SUCCESS OF THIS PROGRAM. TO ALL THE ORGANIZATIONS WHO HAVE ASSISTED THIS GROUP, IN PARTICULAR [redacted] WE OFFER OUR SINCERE THANKS. TO THOSE WHO WILL FOLLOW US, WE OFFER OUR BEST WISHES FOR SUCCESS THAT HAS BEEN CHARACTERISTIC OF THE CORONA PROGRAM.

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--END OF MESSAGE-- GP-1